We claim:

1. A method for generating a two-dimensional distance field within a cell associated with a two-dimensional object, comprising:

determining a set of boundary descriptors for the two-dimensional object;

partitioning the set of boundary descriptors into a set of segments, the segments delimited by a set of features of the set of boundary descriptors;

identifying a first segment and a second segment in the set of segments associated with the cell;

specifying a first set of distance values using the first segment;

specifying a second set of distance values using the second segment;

defining a reconstruction method for reconstructing the distance field within the cell using the first set of distance values and the second set of distance values; and

storing for the cell, the first set of distance values, the second set of distance values, and the reconstruction method in a memory to enable reconstruction of the distance field within the cell by applying the reconstruction method.

2. The method of claim 1 wherein a particular boundary descriptor in the set of boundary descriptors is a spline curve.

3. The method of claim 1 wherein a particular boundary descriptor in the set of boundary descriptors is a line segment.

4. The method of claim 1 wherein a particular feature in the set of features is a point of a corner associated with the set of boundary descriptors.

5. The method of claim 1 wherein a particular feature in the set of features is a point associated with a substantial degree of curvature of the set of boundary descriptors.

6. The method of claim 1 wherein a particular feature in the set of features is an endpoint associated with the set of boundary descriptors.

7. The method of claim 1 wherein a particular feature in the set of features is a point associated with a substantial amount of accumulated curvature of the set of boundary descriptors.

8. The method of claim 1 wherein the partitioning uses an analytic description of the set of boundary descriptors to determine a particular feature in the set of features.

9. The method of claim 1 wherein the identifying further comprises:

selecting the first segment from the set of segments according to a distance of the first segment from the cell; and

selecting the second segment from the set of segments according to a distance of the second segment from the cell.

10. The method of claim 1 wherein the reconstruction method determines a sample distance at a sample point associated with the cell, the determining comprising:

determining a first distance from the first set of distance values;

determining a second distance from the second set of distance values; and

combining the first distance and the second distance to reconstruct the sample distance.

11. The method of claim 10 wherein the combining selects a minimum of the first distance and the second distance.

12. A method for generating a distance field for a region of a shape descriptor representing an object, the distance field including a set of cells, comprising:

defining a set of cell types;

generating a configuration of a set of cells for the region, each cell having a particular cell type as defined by the set of cell types and a method for reconstructing the distance field within the cell;

modifying the configuration of the set of cells based on the shape descriptor, the region, and the set of cell types until an optimal configuration of the set of cells for the region is reached; and

storing the optimal configuration of the set of cells in a memory to generate the distance field for the region of the shape descriptor representing the object.

13. The method of claim 12 wherein a particular cell type in the set of cell types is a bi-linear cell type.

14. The method of claim 12 wherein a particular cell type in the set of cell types is a bi-quadratic cell type.

15. The method of claim 12 wherein a particular cell type in the set of cell types is a two-segment cell type.

16. The method of claim 12 wherein a particular cell type in the set of cell types is a corner cell type.

17. The method of claim 12 wherein the configuration of the set of cells tessellates the region.

18. The method of claim 12 wherein the configuration of the set of cells covers a subset of the region.

19. The method of claim 12 wherein the configuration of the set of cells covers a superset of the region.

20. The method of claim 12 wherein the cells in the configuration of the set of cells are overlapping.

21. The method of claim 12 wherein the generating of the configuration of the set of cells is manual.

22. The method of claim 12 wherein the generating of the configuration of the set of cells is automatic.

23. The method of claim 12 wherein the generating of the configuration of the set of cells is semi-automatic.

24. The method of claim 12 wherein the modifying of the configuration of the set of cells is manual.

25. The method of claim 12 wherein the modifying of the configuration of the set of cells is automatic.

26. The method of claim 12 wherein the modifying of the configuration of the set of cells is semi-automatic.

27. The method of claim 12 wherein the optimal configuration of the set of cells minimizes a size of the distance field.

28. The method of claim 12 wherein the optimal configuration of the set of cells minimizes a time required to render the distance field.

29. The method of claim 12 wherein the optimal configuration of the set of cells minimizes a time required to generate the distance field.

30. The method of claim 12 wherein the optimal configuration of the set of cells maximizes a quality metric of a rendering of the distance field.

31. The method of claim 12 wherein the modifying terminates when a time threshold is exceeded.

32. The method of claim 12 wherein the modifying terminates when an iteration count threshold is exceeded.

33. The method of claim 12 wherein the modifying further comprises:

adding at least one cell to the configuration of the set of cells.

34. The method of claim 12 wherein the modifying further comprises:

removing at least one cell from the configuration of the set of cells.

35. The method of claim 12 wherein the modifying further comprises:

changing an attribute of a particular cell in the configuration of the set of cells.

36. The method of claim 35 wherein the attribute is a geometry of the particular cell.

37. The method of claim 35 wherein the attribute is a location of the particular cell.

38. The method of claim 35 wherein the attribute is an orientation of the particular cell.

39. The method of claim 35 wherein the attribute is a particular cell type of the set of cell types for the particular cell.

40. The method of claim 12 wherein the generating further comprises:

preprocessing the shape descriptor to determine a preprocessed shape descriptor and a preprocessed distance procedure for the region; and

accelerating the generation of the configuration of the set of cells using the preprocessed shape descriptor and the preprocessed distance procedure.

41. The method of claim 40 wherein the modifying further comprises:

accelerating the modifying of the configuration of the set of cells using the preprocessed shape descriptor and the preprocessed distance procedure.

42. The method of claim 12 wherein the generating further comprises:

determining a set of features associated with the shape descriptor; and

generating the configuration of the set of cells using the set of features.

43. The method of claim 42 wherein the modifying further comprises:

modifying the configuration of the set of cells using the set of features.

44. The method of claim 43 wherein the modifying further comprises:

adding an additional feature to the set of features.

45. The method of claim 43 wherein the modifying further comprises:

removing a particular feature from the set of features.

46. The method of claim 43 wherein the modifying further comprises:

altering a particular feature in the set of features.

47. The method of claim 42 wherein a particular feature in the set of features is a point of a corner associated with the shape descriptor.

48. The method of claim 42 wherein a particular feature in the set of features is a point associated with a substantial degree of curvature of the shape descriptor.

49. The method of claim 42 wherein a particular feature in the set of features is an endpoint associated with the shape descriptor.

50. The method of claim 42 wherein a particular feature in the set of features is a point associated with a substantial amount of accumulated curvature of the shape descriptor.

51. The method of claim 12 wherein the generating further comprises:

defining an arbitrary initial set of cells to generate the configuration of the set of cells.

52. The method of claim 12 wherein the generating uses a randomized method.

53. The method of claim 12 wherein the generating uses a probabilistic method.

54. The method of claim 12 wherein the modifying uses a randomized method.

55. The method of claim 12 wherein the modifying uses a probabilistic method.

56. The method of claim 15 wherein a particular cell in the configuration of the set of cells having the two-segment cell type comprises a first set of distance values corresponding to a first segment, a second set of distance values corresponding to a second segment, and a reconstruction method for reconstructing the distance field within the particular cell using the first set of distance values and the second set of distance values, further comprising;

partitioning the shape descriptor into a set of segments, the segments delimited by a set of features of the shape descriptor; and

identifying the first segment and the second segment from the set of segments associated with the particular cell.